

## **REMARKS**

Claims 1-36 are pending in the application. Claims 4, 5, 8, 33 and 34 are withdrawn from consideration. Claims 1-3, 6, 7 and 9-32, 35 and 36 stand rejected. Claims 4, 5 and 8 stand withdrawn. Claims 1 and 22 have been amended to clarify claim language. No new matter has been added. Reconsideration of the application as amended is respectfully requested. The Examiner's objections and rejections are addressed below in substantially the same order as in the office action.

### **Claim Rejections - 35 USC § 102**

Claims 1-3, 6-7, 22-24 and 35-36 are rejected by the Examiner under 35 U.S.C. 102(b) as being anticipated by Cloud (U.S. Patent No. 2,261,751). Claims 1 and 22 are independent claims.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

For a claim to be anticipated by a prior art reference, the reference must show or disclose each and every feature of the claim as provided in the claim. The Applicants submit that none of the independent claims is anticipated because Cloud does not show or disclose at least one feature contained in each of the independent claims, as explained below:

The Examiner states the following:

With respect to claim 1 Cloud discloses a well bore system for producing seismic energy in an earth formation, comprising:

A cavity containing a fluid (13 in figure 1), said cavity disposed in a wellbore (12); and a drive source (connected to hose 24 in figure 1 comprising the piston, and prime mover 34) in fluid communication with said cavity (by means of hose 24) for generating pressure waves in said cavity, said cavity producing seismic waves in the earth formation in response to said pressure waves, said cavity and said drive source forming a closed loop through which fluid circulates (that is the fluid cannot escape from the closed loop of the reservoir 22, cavity 13 and drive source).

The Applicants respectfully disagree. Claim 1 has been amended to clarify claim language and includes the feature of a drive source in fluid communication with the cavity, the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein the fluid circulates between the cavity and drive source in a closed loop. An example of a closed loop can be seen in Figure 1A of the present application in which fluid circulates between cavity 103 and drive source 105 via the closed loop that includes feedback line 117, reservoir 109, pump 111, accumulator 113 and excitation valve 115. Cloud does not disclose this feature. Instead, Cloud discloses a pump 26 in fluid communication with cavity 13 via a communication channel that includes hose 24 and tube 14. However, the fluid of Cloud does not circulate between the cavity and the drive source in a closed loop, as in claim 1. Therefore, Cloud does not disclose at least one feature of claim 1. Accordingly, Applicants respectfully submit that claim 1 is not anticipated by Cloud.

Claims 2-3, 6-7 and 35 depend from claim 1 and therefore are not anticipated by Cloud for at least the reasons presented with respect to claim 1.

Claim 22 includes the features of claim 1 and therefore is not anticipated by Cloud for at least the reasons presented with respect to claim 1.

Claims 23-24 and 36 depend from claim 22 and therefore are not anticipated by Cloud for at least the reasons presented with respect to claim 22.

#### **Claim Rejections - 35 USC § 103**

Claims 9 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Stangroom (W09750077). Claims 9 and 25 depend from claims 1 and 22, respectively.

Stangroom is cited by the Examiner for disclosing the use of a smart fluid as the working fluid for an acoustic transducer. However, Applicants submit that Stangroom does not disclose the feature of a drive source in fluid communication with the cavity, the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein the fluid circulates between the cavity and

drive source in a closed loop. Therefore Cloud and Stangroom, either alone or in any combination, do not disclose at least one feature of the base claims of claims 9 and 25. Accordingly, claims 9 and 25 are not obvious over Cloud, Stangroom and the prior art of record for at least this reason.

Claims 10-13 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Stangroom as applied to claim 9 above and further in view of Wassel (U.S. Patent 6,257,356). Claims 10-13 and 26-28 depend from claims 1 and 22, respectively.

Wassel does not disclose the feature of a drive source in fluid communication with the cavity, the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein the fluid circulates between the cavity and drive source in a closed loop. Therefore Cloud, Stangroom and Wassel, either alone or in any combination, do not disclose at least one feature of the base claims of claims 10-13 and 26-28. Accordingly, Applicants respectfully submit that claims 10-13 and 26-28 are not obvious over Cloud, Stangroom, Wassel and the prior art of record for at least this reason.

Claims 14 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Stangroom and Wassel as applied to claim 10 above, and further in view of Dedole. Claims 14 and 29 depend from claims 1 and 22, respectively.

Dedole does not disclose the feature of a drive source in fluid communication with the cavity, the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein the fluid circulates between the cavity and drive source in a closed loop. Therefore Cloud, Stangroom, Wassel and Dedole, either alone or in any combination, do not disclose at least one feature of the base claims of claims 14 and 29. Accordingly, Applicants respectfully submit that claims 14 and 29 are not obvious over Cloud, Stangroom, Wassel, Dedole and the prior art of record for at least this reason.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Stangroom, Wassel and Dedole as applied to claim 14 above, and further in view of Varsamis (U.S. Patent No. 6,366,531).

However, Varsamis does not disclose the feature of a drive source in fluid communication with the cavity, the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein the fluid circulates between the cavity and drive source in a "closed loop. Therefore Cloud, Stangroom, Wassel, Dedole and Varsamis either alone or in any combination, do not disclose at least one feature of the claim 1 from which claims 15-17 depend. Accordingly, Applicants respectfully submit that claims 15-17 are not obvious over Cloud, Stangroom, Wassel, Dedole, Varsamis and the prior art of record for at least this reason.

Claims 18 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Dedole. Claims 18 and 32 depend from claims 1 and 22, respectively. Cloud and Dedole, either alone or in any combination, do not disclose at least one feature of the base claims of claims 18 and 32. Accordingly, Applicants respectfully submit that claims 18 and 32 are not obvious over Cloud, Dedole and the prior art of record.

Claims 19-21 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Dedole as applied to claim 18 above, and further in view of Varsamis. Claims 19-21 and 30-31 depend from claims 1 and 22, respectively. Cloud, Dedole and Varsamis, either alone or in any combination, do not disclose at least one feature of the base claims of claims 19-21 and 30-31. Accordingly, Applicants respectfully submit that claims 19-21 and 30-31 are not obvious over Cloud, Dedole, Varsamis and the prior art of record for at least this reason.

### **CONCLUSION**

For all the foregoing reasons, Applicant submits that the application is in a condition for allowance and such an action is requested. The Commissioner, however, is authorized to charge any fee that may be due or credit any overpayment related to the filing of this paper to Deposit Account No. **13-0010 (054-14966-USCP)**

Respectfully submitted,

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/Ronald E. Jones/  
Paul S. Madan, Reg. No. 60,120  
Madan & Sriram, P.C.  
2603 Augusta Drive, Suite 700  
Houston, Texas 77057-5662  
Telephone: (713) 266-1130  
Facsimile: (713) 266-8510